

More Accurate Biogeoclimatic Maps Available for Cranbrook and Kootenay Lake Forest Districts

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- Several new BEC units mapped in both districts
- 61% of Kootenay Lake and 34% of Cranbrook has changed

INTRODUCTION

Digital mapping of biogeoclimatic ecosystem classification (BEC) subzones and variants accurate to 1:50 000 scale is now available for the Cranbrook and Kootenay Lake Forest Districts. This is a dramatic increase in accuracy over the previous 1:250 000 scale mapping. Significant changes from the previous mapping have occurred. About 61% and 34% of Kootenay Lake District and Cranbrook District, respectively, have changed classification. Numerous new BEC subzones/variants have been recognized and some previously recognized but unmapped units have been mapped.

A few highlights of the changes follow.

Kootenay Lake

- Eleven new BEC units were recognized. Most of the new subzones/variants are found in the southeastern portion of the District.
- About one third of the District has changed Natural Disturbance Type (NDT).
- Alpine Tundra (AT) and ESSF parkland units are now mapped separately.
- The ESSFwc1 is now mapped separately from the ESSFwc4.

Cranbrook

- Nine new BEC units were recognized. Most of the largest new units (ICHdm, ESSFdm1, ESSFdmu, ESSFdmu) are found primarily in the western portions of the District.
- About 14% of the District has changed NDT.
- Alpine Tundra (AT) and ESSF parkland units are now mapped separately.
- Upper-elevation variants of all ESSF units have been recognized.

METHODS

Mapping was revised through observation of vegetation patterns during extensive road transects of the districts. Observation locations were determined using a Global Positioning Satellite (GPS) receiver. Observations were then used to develop elevation rules and "hard lines" (non-elevation-related boundaries) for BEC unit boundaries. Air photos were interpreted to develop elevation rules for ESSF parkland and AT boundaries. The elevation/aspect rules and hand-drawn boundaries were combined to create a digital map product at 1:50 000.

RESULTS

General

About one third of the change is due to improved precision of mapping at higher elevations. The combined parkland/AT unit has been split into three: upper-elevation ESSF, ESSF parkland, and AT. The upper-elevation ESSF has varying amounts of closed forest but is generally more open than the ESSF proper. It has distinctive vegetation such as mountain-heathers and alpine larch, and tree islands among meadows may be found. Above the elevation where continuous closed forest is found, the parkland is mapped, while the AT is mapped where no trees are found.

Kootenay Lake

New variants have been mapped in the southeastern portion of the District. This is the result of recognizing the warmer and drier climate of this area. Two of the new BEC units are of significant size. The ESSFdm1 covers about 104 000 ha and is now the third largest BEC unit of the District. This variant was formerly mapped as part of the ESSFwm. The ICHdm is found east of Kootenay Lake south of Lockhart

Creek, in areas formerly mapped as ICHmw2. It covers over 90 000 ha. As a consequence, the ICHmw2 is about half its former size in this District. New variants of the ICHmw and the ESSFwc have been mapped south of the west arm of Kootenay Lake where warm aspect sites can be dominated by beargrass.

The ICHwk1 has almost doubled in size in this District, with the bulk of the new area being found along the Lardeau River.

Cranbrook

The ICHdm and ESSFdm1 are the two most significant new units at low to mid elevations. All of the former ICHmw2 is now mapped as ICHdm, while a significant portion of the ESSFwm is now mapped as ESSFdm1. The new units are found on the western side of the District. The PPdh2 has increased in size by about 40%.

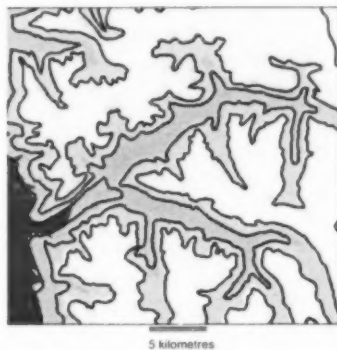


Figure 1. Comparison of new mapping (shaded polygons) and old mapping (black lines) in Carney and Fry Creeks at the northwest end of Kootenay Lake. Note the more detailed mapping and the additional units in the new mapping.

IMPLICATIONS

The implications of more accurate mapping are far ranging. Much of British Columbia's forest management is based on the Biogeoclimatic Ecosystem Classification framework. BEC is the basis for determination of seral stage targets, tree species selection, silvicultural treatments, seed transfer rules, root disease hazard ratings, soil sensitivity, and site index estimation by BEC site series, among other things.

Timber availability can be affected significantly by changes in NDT due to changing target levels of old forest reserves. The 33% and 14% figures (Kootenay Lake and Cranbrook, respectively) for change of NDT may be much greater for a given landscape unit (the scale at which these targets apply). This in turn can have a dramatic effect on short-term timber supply.

Increasing areas of the province are slated for site series mapping (Terrestrial Ecosystem Mapping [TEM] or Predictive Ecosystem Mapping [PEM]) at scales of 1:20 000 or 1:50 000. Having accurate 1:50 000 BEC mapping greatly speeds and provides for more accurate TEM and PEM. Site series mapping is a powerful tool used for site index adjustment, wildlife habitat assessment, and forest management planning. Since site index is an input to growth and yield models, changes in BEC mapping can affect Allowable Annual Cut calculations.

Having more accurate biogeoclimatic mapping also simplifies field assessments for Silvicultural and Stand Management Prescriptions.

HOW TO GET THE MAPS

The mapping is available in the following ways.

1. On the B.C. Ministry of Forests FTP site at <ftp://ftp.for.gov.bc.ca/branches/research/external/lpublish/becmaps>. The information is provided in ARC/INFO export format.
2. From the B.C. Government FTP site at <ftp://nelftp.env.gov.bc.ca/pub/outgoing/misc/becmapping/>. These maps are 1:250 000 print files by district and include 200 m contours, water bodies, and major settlements. The files are in HP plotter (.rpl) format.

FUTURE WORK

- Large-scale BEC mapping for the remainder of the Nelson Forest Region will be completed over the next few years. The only districts remaining are Boundary and Invermere.
- The newly recognized subzones/variants require provincially correlated site series classifications. In particular, the ICHdm and ESSFdm1, large units with considerable areas of operable forest, are priorities for classification work.
- The newly recognized upper-elevation subzones of the ESSF require some additional work on the lower elevation limits, disturbance frequency, productivity (SIBEC estimates), and site series classification.
- NDT assignment of the ESSFdm1 requires additional work.

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Nelson Forest Region Forest Extension Notes:
<http://www.for.gov.bc.ca/nelson/research/SUMMARY/Index.htm>



